

**Interim Remedial Measures Work Plan  
Source Removal  
Champaign Former Manufactured Gas  
Plant**

October 1, 1997

Prepared for:

**ILLINOIS POWER COMPANY**

Decatur, Illinois

Columbia, Illinois



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Prepared for:  
**ILLINOIS POWER COMPANY**  
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**PHILIP SERVICES CORPORATION**  
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Project 17246

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# 1 INTRODUCTION

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At the request of Illinois Power Company (IP), Philip Services Corporation (Philip) prepared this work plan for the interim remedial measures (IRM) source removal at the former manufactured gas plant (MGP) in Champaign, Illinois. The site-specific Health and Safety Plan and Ambient Air Monitoring Plan are provided under separate cover. IP is working in cooperation with the Illinois Environmental Protection Agency (IEPA) under the Site Remediation Program.

The primary objective of this IRM is to remove the sources of contamination and prevent future potential releases of coal tar or coal-tar constituents in the subsurface from the original source areas. This source removal is part of the overall site management plan. A risk evaluation will be performed subsequent to the source removal. Institutional controls or engineered barriers are options that may be considered to mitigate any remaining risk at the site.

This work plan addresses excavation and treatment/disposal of source material in Gas Holder 1 (GH-1), tar wells and a tar separator, and purifier waste. Coal tar and saturated cinders from GH-1 will require on-site blending to render the material non-hazardous. Purifier waste, which is non-hazardous, will be blended with the source material in GH-1. Lightly impacted material from tar wells and a tar separator will also be blended into the material in GH-1. Concrete purifier pads will be demolished and used as backfill. The site will be restored to its present grade following backfill of the excavations.

In addition to the source removal, the following activities will be conducted during the IRM:

- a test trench will be excavated to a depth of approximately 20 feet along the northern fence to assess methods for containing the off-site movement of coal tar and/or coal-tar impacted groundwater;
- a test trench will be excavated approximately 80 feet east of GH-1 to attempt to locate unidentified below-ground structures;
- an abandoned storm sewer traversing the site will be capped at its west and east termini at Fifth Street and the Sixth Street right-of-way, respectively; and,
- approximately 120 clean empty drums, two dozen wooden pallets, miscellaneous pipes, hoses and fencing will be crushed, placed in dumpsters or directly into trucks, and transported to a landfill designated by IP.

## 1.1 Site Location and History

The Champaign MGP site is located in east-central Illinois, at 308 North Fifth Street, at the intersection of Hill and Fifth streets. The site, occupying approximately 2.6 acres, is located in a residential area within the city limits of Champaign in Champaign County. This site was the former location of a manufactured gas plant.

A below-ground gas holder (GH-1), later converted to a tar separator, four tar wells, and a smaller tar separator are located in the northern portion of the site. Two above-ground gas holders, GH-2 and GH-3, were located at the north-central and south-central portions of the site. Three purifier pads are located west of the former Booster House, which is the only building that remains from the former gas plant. The northwestern corner of the site is underlain by the basement and foundation of the gas plant building.

IP currently owns the entire area occupied by the former manufactured gas plant site. The entire site is fenced and relatively level. Adjacent properties include residences on the north and south, residences on the west side of North Fifth Street, and an abandoned section of North Sixth Street (called the Sixth Street right-of-way), used by foot traffic, on the east. East of the Sixth Street right-of-way is a parking lot for the Covenant Medical Center.

Access to the site is through a gate at the west side of the site, off of North Fifth Street. A site plan is presented as Figure 1.

## 1.2 Previous Studies

A preliminary Phase I site assessment was conducted by Warzyn Engineering, Inc., in 1986. Subsequently, Phase IC and ID RECON investigations were performed in 1990 by Burlington Environmental, Inc. (now Philip) to obtain subsurface data, followed by a more comprehensive Phase II site investigation. Investigation activities conducted at the Champaign MGP site from 1990 through 1992 are presented in detail in the two-volume remedial investigation report, "Phase II Site Investigation, Champaign Former Manufactured Gas Plant, Champaign, Illinois," dated March 4, 1994, and prepared by Burlington Environmental, Inc. An additional investigation was conducted during March, 1997 to assess the extent of coal-tar impact east of the former MGP site and further characterize the contents of GH-1. The report of that investigation, conducted by Philip, is described in "Supplemental Site Investigation, Champaign Former Manufactured Gas Plant, Champaign, Illinois," dated July 30, 1997.

The results of the previous investigations indicated on-site impacts to fill, soil and groundwater from coal-tar residues. Off-site impact to soil and

groundwater by coal-tar residues has also been identified to the east, north, and west of the site. In addition, some impact to soils by fuel oil was identified along the south boundary of the site.

Quarterly groundwater monitoring was initiated at the Champaign MGP in February, 1996 to monitor groundwater quality both on and off site.

### 1.3 Proposed IRM

This IRM addresses excavation and treatment/disposal of the contents of GH-1, the tar wells and tar separator, and purifier waste. Heavily impacted materials from GH-1 will require on-site blending to render the materials non-hazardous prior to transport to the Baldwin Thermal Treatment Facility (BTT) for disposal as special waste.

The contents of the upper portion of GH-1 consists of coal-tar impacted water. Prior to excavation at GH-1, the water will be pumped out of the holder for treatment, storage, and testing prior to disposal to the sanitary sewer system.

The material contained within the lower part of GH-1 is classified as characteristic hazardous waste for toxicity by TCLP because of benzene. Blending ratios and methods have been developed based on previously successful ratios used at other MGP sites and bench-scale treatability testing. Soil, purifier waste, coal, and quicklime will be blended with the hazardous materials within GH-1. Material excavated from the tar wells and separator may also be added to the blend within GH-1. The blended mixture will be stockpiled and tested, and rebled if necessary, to meet BTT acceptance criteria.

The walls of GH-1 will be left in place to facilitate contents removal, blending and backfilling. Backfilling will be completed with clean granular material from off site and concrete demolition debris from the purifier pads, building foundation slabs, and the GH-1 lid.

Historic site drawings indicate as many as four tar wells and a tar separator may exist at the site. An attempt will be made to locate the tar structures in the areas indicated on the drawings. If the structures are located and contain coal-tar impacted materials, the material will be excavated and blended with the materials within GH-1. Depending on their condition, the walls and floors of the tar structures will be removed completely or partially along with the contents to facilitate excavation. Backfilling of tar-handling structure excavations will be completed with clean granular material from off site.

Purifier wastes occur at a depth of one to three feet, east of the former Booster House. The material to be excavated in this area, identified on Figure 1, is composed primarily of wood shavings, coal, cinders, and brick. The purifier wastes are non-hazardous. The large amount of wood shavings, coal, and cinders within this material, in addition to the low pH, make this a suitable material for blending with the contents of GH-1. Following dewatering of GH-1, the stockpiled purifier wastes will be placed into the gas holder for blending.

Upon completion of excavation and backfilling, equipment will be decontaminated and temporary structures and safety barriers will be removed. Grades will be restored to the original elevations, and the excavations and areas disturbed by the construction activities will be covered with either gravel or topsoil. The purifier waste area west of the Booster House will be backfilled with clean soil and covered with gravel. A final grading and seeding for grass cover at other portions of the site will be completed in the spring of 1998.

#### **1.4 Permits**

IP has prepared an application for a permit to discharge treated wastewater from remedial activities to the City of Champaign's sanitary sewer system and the Urbana-Champaign Sanitary District. This application has been submitted to the IEPA, and a permit will be issued prior to discharge of any wastewater.



## 2 PROJECT ORGANIZATION

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### 2.1 Project Team

Philip will perform IRMs at the Champaign site under the IP/Philip MGP Alliance Agreement, and in accordance with this work plan pending IEPA approval. IP has contracted with Monti Communications (Monti) to prepare and implement an IEPA-approved community relations plan.

The IEPA Project Manager is Mr. Andy Frierdich, the IP Project Manager is Mr. Brian Martin, and the Monti Project Manager is Ms. Gretchen Monti. Brian Martin will be IEPA's primary contact.

### 2.2 Philip Personnel

The roles of various Philip personnel are defined as follows for the IRMs:

Program Manager:	Darrel Wolff, P.E. Overall responsibility, Engineer of Record Illinois Power contact
Project Manager:	Irv Van Zummeren, Jr. P.G. Field activities coordination and management Contact with Program Manager and Site Superintendent
Site Superintendent:	Russell Tomasko Daily operations Quality control Health and safety Implementation of Work Plan
Site Manager:	Stuart J. Cravens, CGWP Sampling Work Plan compliance Photo-documentation

## 2.3 Subcontractors

In the performance of this remedial action, Philip will utilize subcontractors and suppliers for the following:

- Transportation to BTT
- Furnish and deliver backfill
- Transport and storage of granular quicklime
- Heavy equipment rental - excavators, front-end loader, back-hoes, temporary liquid storage tanks, rolloff containers
- Material supply - liners and geotextile fabrics, granular quicklime, backfill material

## 3 WASTE CHARACTERIZATION

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### 3.1 Sample Collection and Analysis

Samples of source material were collected from GH-1 and from the purifier waste area in 1997. A representative sample of coal tar from GH-1 was analyzed for parameters listed in Table 1, taken from BTT's Preacceptance Procedures and Rationale for WSN 1 - Nonhazardous Coal Tar and Coal Oil, and Soil and Debris Contaminated with Coal Tar and Coal Oil, Revision 1. The purifier waste sample was analyzed for a subset of the parameters listed in Table 1. Analytical results for the coal tar and purifier waste samples are summarized in Tables 2 and 3, respectively.

As shown on Figure 2, GH-1 contains coal-tar impacted water from near land surface to about 7 feet below land surface (BLS). A transition zone from water to coal tar occurs from about 7 to 10 feet BLS. Coal tar and coal-tar impacted materials (i.e., cinders) occur from 10 feet to the base of GH-1 at 16.5 feet BLS.

The coal tar and coal-tar impacted materials within GH-1 are hazardous by toxicity characteristic for TCLP benzene. Sample GH1-12 (Table 2) is estimated to be representative of the upper horizon of this material, which is a viscous coal tar containing variable amounts of water. The bottom of the holder is estimated to be 16.5 feet deep at the outer edges and 13 feet deep in the center, forming a conical base.

The tar wells and separator are expected to contain a variety of fill material, most of which is expected to be impacted with coal tar. Based on the earlier studies, this material will include soil, rubble, brick, cinders, clay, sand, and gravel with variable amounts of coal-tar impact.

A composite soil sample containing purifier waste was collected south and north of the purifier pads and analyzed for a subset of the parameters in Table 1; this sample was found to be non-hazardous.

### 3.2 Treatability Procedures

Blending ratios that are expected to render the waste streams non-hazardous have been developed based on experience gained from blending similar materials during previous IRMs at MGP sites, and bench-scale testing. The blending ratios will be adjusted in the field as necessary under the direction of the site superintendent. Blended material will be stockpiled on site and a composite sample from the stockpile will be analyzed for

TCLP benzene. A sample will be taken for every 1,000 tons of blended material. If the analysis does not demonstrate that the blended material is non-hazardous, it will be reblended under the direction of the treatability engineer.

The following blending ratio for the coal tar and coal-tar impacted materials within GH-1, which occur from approximately 7 to 16.5 feet BLS, are considered starting points. All portions are expressed as weights:

	Depth	Source Material	Clean Soil*	Coal	Quicklime
GH-1	7-16.5 feet	1 part	3 parts	2 parts	5 percent

\* Non-hazardous soil from the purifier waste area and tar structures may also be added to the blend as a partial substitute for clean soil. Additional clean soil will be brought in from off-site as necessary.

The materials will be blended to produce a reasonably homogeneous mixture. Previous treatability studies and field experience have shown that curing time (24 hours minimum) following blending is also effective in reducing benzene concentrations.

### 3.3 Waste Stream Acceptance

Analytical results of the unblended waste and waste profile sheets will be submitted to BTT for acceptance prior to waste shipment.

## 4 MOBILIZATION AND SITE PREPARATION

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Figure 1 shows site features, stockpile locations, and planned locations of the support facilities to be utilized during the IRM. The location of the test trench at the northeast corner of the site is also shown. These facilities are discussed in the following sections.

### 4.1 Project Support Facilities

In order to effectively manage and perform the proposed construction activities, Philip intends to place an office/storage trailer north of the gate inside the west fence. The office trailer or an auxiliary trailer will also be used to store small field equipment and tools.

One temporary, 240-volt, 100-amp single-phased electrical service drop has been located in the area of the office trailer. Four additional 120-volt, 100-amp electrical service drops have been located around the perimeter of the site for ambient air monitoring equipment. A night light with photo cell control will be placed at the northwest corner of the Booster House for site security and background lighting during low light conditions.

Portable sanitary facilities will be located near the office trailer. A dumpster will be provided to store general trash generated by the work activities.

A windscreen will be installed along sections of the north, south and west fence as an aesthetic and protective barrier between the surrounding residential area and the construction site.

Upon completion of the project, Philip will remove all temporary structures and temporary connections from the project site.

### 4.2 Stockpiles

Stockpiles will be constructed for blended source material. Source material storage areas will be lined and covered according to Figure 3. Plastic sheeting (6-mil) will be placed over the stockpiles whenever stockpiling or loading activities are not being performed. The storage facilities will be monitored and the covers will be replaced as required. A one-foot high earthen berm will be used around the perimeter of the stockpiles.

The stockpiles of blended material will be located east of the construction area and across the central portion of the site. Gravel will be placed in soft areas (if necessary) to allow truck access to the stockpile.

Clean backfill (granular material and demolition debris) may be placed directly on the ground. Quicklime will be stored on site in a tanker truck to minimize airborne dust and allow for controlled addition into GH-1 during blending.

Debris that has been separated from the source material will be stockpiled on plastic sheeting or stored in roll-off containers until approved for disposal.

### **4.3 Water Treatment System and Wastewater Storage**

A water treatment system, portable storage tanks, and associated pumps, piping and connections, will be provided for the following wastewater streams:

- upper layer of coal-tar contaminated water in GH-1;
- stockpile and excavation run-off;
- seepage water collected from dewatering the lower layer in GH-1 or any of the tar structures during excavation;
- decontamination water; and,
- any other wastewater streams within the site.

It has been estimated that the volume of coal-tar impacted water in GH-1 is approximately 134,000 gallons. Additional coal-tar impacted water may be encountered in the deeper tar wells or tar separator.

The initial water treatment system to be utilized at the site will consist of a sediment tank with baffles, oil/water separator, and portable storage tanks. Other treatment system equipment will be added as necessary to meet discharge permit requirements.

Tanks will be steel "Baker Tanks" or equivalent. Three 21,000 gallon tanks will initially be staged inside the western fence of the site. The water treatment system will also be located on the western side, adjacent to the storage tanks.

### **4.4 Decontamination Pad**

A temporary decontamination pad will be constructed on site as shown on Figure 4. The pad will be lined and bermed, and will contain a sump pit to collect wash liquids. The pad will be constructed near the north gate.

#### **4.5 Environmental Protection**

Stormwater runoff from stockpiles will be controlled using perimeter berms around the stockpiles. No other runoff control is expected to be necessary.

Ambient air monitoring will be performed and operations will be suspended if action levels (see Ambient Air Monitoring Plan) are exceeded.

## 5 EXCAVATION AND BLENDING

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### 5.1 Excavation Plans

The materials to be excavated for disposal are the contents of GH-1, the tar wells and tar separator, and purifier waste (Figure 1). The sequence of excavation at the site will be the purifier waste first, followed by GH-1 and then the tar wells and separator. The material will be blended within GH-1. Purifier waste and lightly impacted material from the tar wells and separator may be used as a partial substitute for clean soil for blending with material in GH-1.

Historic maps of the site indicate the potential for four tar wells located across the northern portion of the site. These tar wells have not been located during previous investigations. If located during the IRM, any impacted material within the tar wells will be excavated and managed appropriately. Based on the results of previous site investigations, it is expected that most of the material from the tar wells and tar separator will be lightly impacted.

Debris, consisting of wood, metal, and other materials not accepted at BTT, will be segregated from the materials found in the excavations and stored in a covered rolloff box for ultimate disposal at an IP-approved landfill.

Pneumatic diaphragm pumps will be used for dewatering GH-1 and the excavations when required. The excavations will be covered each night.

Equipment used for source removal and blending will include a tracked excavator, a tracked excavator with long-stick, rubber-tired front-end loader, dump trucks, and a tanker truck to store and place the granular quicklime.

### 5.2 Purifier Waste

There are approximately 480 cubic yards (CY) of soil containing purifier waste at a depth of one to three feet southwest of GH-1. This material, consisting primarily of wood shavings from the former purifiers, coal, cinders, and brick, is non-hazardous. The area of purifier waste will be excavated and blended with the hazardous material in GH-1, along with additional clean soil, coal and quicklime. The large amount of wood shavings, coal, and cinders within this material, in addition to the low pH, make this a suitable material for blending with the contents of GH-1.



The estimated 240 CY of clean soil and gravel overlying the purifier waste to a depth of one foot will be removed and stockpiled for blending with the contents of GH-1 or reused as final grading material following backfilling of the purifier waste area.

Three concrete purifier pads, with diameters of 20, 22, and 30 feet, will be removed prior to excavation and stockpiled as backfill material for GH-1.

### **5.3 Tar Wells and Separator**

Four tar wells, a tar separator, and other unidentified below-ground structures have been identified on historical maps of the site. The tar wells and separator are expected to contain a variety of fill material of unknown volume. Based on earlier studies, this material will include soil, rubble, brick, cinders, clay, sand, and gravel with minor impact by coal tar. The materials within the tar structures may not be hazardous by toxicity characteristic for TCLP benzene. All lightly impacted material from tar wells or other structures will be excavated, temporarily stockpiled and tested. During blending of hazardous materials within GH-1, the stockpiled tar well material may be added to the blend as a partial substitute for clean soil.

Excavated material that is heavily impacted with coal tar will be segregated from the lightly impacted material and blended with clean soil, coal, and quicklime to render the material non-hazardous, and stockpiled.

Water encountered in any of the tar wells or separator will be pumped to the treatment system and temporary storage tanks. The walls and floor of the tar wells and separator may be partially or totally demolished in the excavation process.

### **5.4 GH-1**

There are an estimated 800 CY of coal-tar, coal-tar impacted cinders, and debris within GH-1. A cross section illustrating the material to be excavated from GH-1 is shown on Figure 2. GH-1 material will be blended and solidified using the ratios outlined in Section 3.2, using clean soil from off site, purifier waste, coal, and granular quicklime. Lightly impacted tar well and separator material may also be added to the blend. The blended mixture will then be stockpiled and sampled.

Larger debris, such as concrete or metal, will be manually separated during the excavation process and stockpiled or loaded into rolloff containers.

Additional equipment may be required to excavate around and remove metal "liners," if present, or gas holder walls.

The upper 7 to 10 feet of GH-1 is occupied by water lightly impacted with dissolved-phase constituents of coal tar. Prior to excavation activities, the concrete lid to GH-1 will be removed/demolished and the holder will be dewatered with pumps. As more solid materials are encountered below a depth of 7 feet, Philip may attempt to excavate a sump within the excavation, if necessary, to continue to pump free liquids from the excavation into the water treatment system and wastewater storage tanks.

From 7 to 10 feet below the surface to the bottom of the holder, the dewatered material will be blended and solidified in the holder using the materials and ratios discussed earlier. To minimize the generation of airborne dust, quicklime will be pumped into GH-1 using a tanker truck, while the excavation cover is in place.

Once the GH-1 material has been blended, it will be excavated and stockpiled in the area shown on Figure 1.

## **5.5 Post-Excavation Actions**

A sample will be collected from the blended material stockpile for laboratory analysis of TCLP benzene, pH, reactivity, and moisture content as discussed in Section 6.1. If the initial process fails to sufficiently reduce the concentration of benzene, the blended material will be moved back to GH-1 and reblended in accordance with the procedures presented above.

Once approval has been received for disposal, the blended material will be loaded onto trucks for transport to BTT as described in Section 8. Prior to release of a truck for transport, the blended material will be field-tested for pH, and a tarp will be placed over the trailer of the truck. Testing for pH may be discontinued if the results are consistently below the 12.5 limit.

Gas holder or tar well and separator walls will not be manually scraped or cleaned prior to the start of backfilling operations, other than removing free liquids and contaminated material using the excavator. Philip anticipates that any free liquids contained in GH-1 or the tar wells and separator will be absorbed in the blending process. Backfilling will begin immediately upon completion of the excavation of each structure, or when all blending and sample verification is complete in the case of GH-1. Backfilling is described in Section 10.

## 6 WASTE MANAGEMENT

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A stockpile for blended material will be constructed in the central portion of the site. A rubber-tired front-end loader will construct the stockpile after blended material is transported from the holder by dump truck. Upon completion of work each day, the stockpile will be covered with 6-mil plastic sheeting, and sand bags will be placed at all overlaps and around the perimeter.

### 6.1 Sampling

The purpose of this section is to define a method for collecting representative samples from the blended material for confirmatory analysis. BTT requires analytical confirmation that the blended material is non-hazardous at the rate of one sample per every 1000 tons delivered to the facility. The total volume of blended coal/soil/lime is estimated to be 2100 tons; therefore, at least three samples will need to be collected from the stockpile.

A composite sample will be collected from the blended material stockpile. Aliquot sample locations will be chosen by dividing the stockpile into ten parts of approximately equal volume. A backhoe or hand shovel will be used to expose the blended material one to three feet below the surface for sampling. A stainless steel spoon will be used to collect aliquots, approximately 200 grams in mass. The ten aliquots will be mixed in a stainless steel bowl in a manner sufficient to achieve homogeneity of the composite sample. The stainless steel sampling spoon and bowl will be decontaminated according to Philip standard field practices, which include ASTM D 5088-90.

Sample containers will be filled, labeled, and manifested in a manner consistent with Philip standard field practices. The sample container for TCLP benzene, pH and reactivity will be a 250-ml glass jar provided by the laboratory. The sample jar will be filled to the top with the blended soil material; voids are to be eliminated as much as possible. Sample jars will be labeled and placed in a cooler following collection and cooled to 4 degrees C. No other preservative is required for these samples. Samples will be wrapped in bubble wrap or similar cushioning material and packed in the cooler in such a way as to prevent movement or breakage during shipment. Sufficient ice will be double bagged in sealed plastic bags and placed in the cooler adjacent to sample containers to cool the samples to the necessary temperature until delivery to the laboratory. The maximum holding time prior to extraction is seven days.

Laboratory chain-of-custody forms will be completed and signed by the sample collector in the field, or by trained personnel upon return to the of-

fice. The chain-of-custody procedure will follow ASTM D 4840-88 (Reapproved 1993). The chain-of-custody form will be placed inside a sealed plastic bag and then inside the cooler prior to shipment to the laboratory. The cooler will be sealed with strapping tape and shipped to the laboratory by Federal Express overnight delivery or similar service. The shipping documents will be utilized to document chain-of-custody by the selected delivery service. Upon receipt of the samples by the laboratory, the laboratory sample custodian will open the cooler, inspect and verify the condition of the samples, and sign the chain-of-custody form.

## 6.2 Analysis

The source area materials were initially tested for BTT acceptance criteria. Materials from two to six feet in the source area were found to be hazardous for the toxicity characteristic of benzene (action level 0.5 mg/L). Soil from the lower part of the source area (13-15 feet) tested not hazardous for TCLP benzene. As previously discussed, the remainder of the material to be excavated is lightly contaminated, but is expected to be not hazardous as well.

The use of five percent quicklime in the mixture has historically increased pH to near 12.0. Higher percentages of lime could cause the mixture to be classified hazardous (pH greater than 12.5) or reactive. Therefore, the confirmation analysis of the blended material will be for TCLP benzene, pH and reactivity. The laboratory will conduct the tests with an expected turn-around time of two days. Field testing of pH will also be conducted.

ARDL, the designated analytical laboratory, is an IEPA contract laboratory in the CLP program, and follows all IEPA guidelines for quality assurance and control.

A quality assurance review will be conducted for the analytical results received from the laboratory. Laboratory data will be reviewed in accordance with the guidelines set forth in the USEPA "Laboratory Data Validation Functional Guidelines for Evaluating Organic and Inorganic Analyses", 1994, and the method-specific quality requirements. The review will consist of checking holding times, method blank data, system blank data, spike data, and replicate data.

Upon confirmation that the blended material is non-hazardous, the material will be loaded into trucks for transport to BTT. In the event that analysis of a sample shows a TCLP benzene concentration in excess of 0.5 mg/L, pH greater than 12.5, or that the sample is reactive, the stockpile will be resampled following additional curing time to verify the analytical results. The sample will be collected from the stockpile in the same manner out-

lined above, and analyzed for TCLP benzene, pH and/or reactivity. If the second analysis shows that the material is non-hazardous and not reactive, the stockpile will be considered non-hazardous and non-reactive, and will be loaded for transportation off site to BTT.

If the analysis of the second sample confirms that the material is hazardous for toxicity characteristic from TCLP benzene, the stockpile will be re-mixed in the mixing boxes with coal and/or additional clean soil in sufficient amount to reduce the TCLP benzene concentration to 0.5 mg/L or less. If pH reduction is required, a solution to neutralize the lime will be employed (such as phosphate). The blended material will then be stockpiled and retested. The rebled cinders/soil/lime mixture will be sampled and analyzed in the same manner as the initial stockpile.

## 7 WASTEWATER DISPOSAL

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Wastewaters will initially be phase separated by pumping through an oil/water separator, followed by a sediment tank with baffles. The phase-separated water will be collected in the temporary storage tanks and sampled and analyzed for the chemical parameters required by the discharge permit. Coal-tar oil collected by the oil/water separator will be pumped back into GH-1 and mixed with blending material.

Subsequent to permit approval, and following receipt of the water analyses, the water may undergo additional treatment such as activated carbon filtration, if necessary, and will be discharged into the local sanitary sewer system. Permit applications have been submitted by IP. The treatment system design was included in the permit application and will be adjusted and finalized in the field. The treatment system will be manually operated under the direction of an Illinois certified wastewater operator.

Following disposal, the temporary storage tanks will be decontaminated and cleaned. The decontamination water will be discharged into the local sanitary sewer system, and residual oil and sludges will be properly disposed of off site or blended with soil and transported to BTT.

## **8 TRANSPORTATION**

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All soils will be transported as special waste to the BTT facility at Baldwin, Illinois. Blended material will be loaded upon receipt of analytical testing results that indicate the TCLP benzene toxicity characteristic has been eliminated. All soils mixed with lime must first pass a laboratory or field determination that pH is less than 12.5.

### **8.1 Transporter**

A licensed transporter for special waste will be used to transport material to BTT.

### **8.2 Vehicle Loading**

The blended soils will be transported in covered aluminum end dump trailers. Each load will contain approximately 24 tons of material. Philip will be responsible for preparing documentation and manifests to permit transportation of the blended material as a special waste. IP will be identified on the documentation as the generator of the special waste.

Philip has assumed that a maximum of ten to fifteen truckloads can be delivered to BTT per day. Should the BTT facility be able to handle more truckloads, Philip will make arrangements to place additional vehicles in service in order to reduce the amount of time to deliver the material to BTT.

## 9 DISPOSAL

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The following disposal facilities have been selected by IP for non-liquid wastes.

### 9.1 Special Waste Disposal

All soils will be disposed of as special waste at:

Baldwin Thermal Treatment Facility  
10901 Baldwin Road, PO Box 146  
Baldwin, Illinois 62217  
Illinois Facility ID# 1578510001

Other special wastes, including trash and debris not accepted at BTT and segregated from the holder contents, and other solid wastes such as material scraps, disposable protective clothing, used pad materials (including liners), etc., will be collected in an on-site dumpster and transported to a landfill designated by IP.

### 9.2 Manifesting

State of Illinois manifests will be used at the site. Proper DOT classification will be utilized. The waste manifest will accompany shipment to the final destination.



## 10 BACKFILLING

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Granular material such as sand, gravel, or limestone fines will be used as backfill. Demolition debris from the concrete purifier pads, any near-surface building foundations, and the GH-1 concrete lid, will also be placed in the excavations as backfill. Based on past experience and specific knowledge of this site, all demolition concrete is anticipated to be non-hazardous and suitable for use as on-site fill. If significant amounts of coal tar are visible on the concrete rubble, it may be cleaned before use as backfill, or sorted out and sent to BTT or an approved landfill for disposal.

Backfilling of each area or structure will begin immediately upon completion of excavation and stockpiling of the excavated or blended material from that area/structure. Since the purifier waste area is within the middle of the circular drive around the Booster House, it will be excavated and backfilled first. Approximately 12 inches of gravel, both from the surface of the purifier waste excavation and from off site, will be placed at the surface and compacted as necessary to allow use by tractor trailers.

A backfill profile of GH-1 is shown on Figure 2. GH-1, tar wells, and the tar separator will be backfilled with granular fill to one foot below the existing grade. The majority of the backfill will be dumped directly in each excavation. The upper few feet of backfill will be compacted by driving across it using the excavator and rubber-tired loader. Compaction testing will not be performed and there are no compaction requirements. The final layer will be 6 to 12 inches of topsoil, as described in Section 11, Site Restoration.

## 11 SITE RESTORATION

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Site restoration will consist of restoring the approximate original grades, placement of topsoil if necessary, site takedown, and demobilization. Topsoil will be stockpiled at the site to allow for a final grading and seeding for grass cover in spring, 1998. Although the majority of the work for this task will be performed at the end of field activities, the dismantling and removal of storage facilities and storage containers will be completed when their use is no longer required.

Upon completion of backfilling, approximately 6 to 12 inches of topsoil will be placed over the excavation areas with the exception of the purifier waste area. The purifier waste area is within a circular drive and is to be restored to a gravel surface immediately upon completion of excavation. Restored areas will be graded to generally conform to the grades and elevations present prior to the work. Additional topsoil will be applied as necessary during spring, 1998, the surface will be final-graded, and grass seed will be applied to establish grass cover conforming with pre-IRM conditions at the site.

Prior to final departure from the site, a general policing of the site will be conducted.

## 12 PROJECT COMPLETION REPORT

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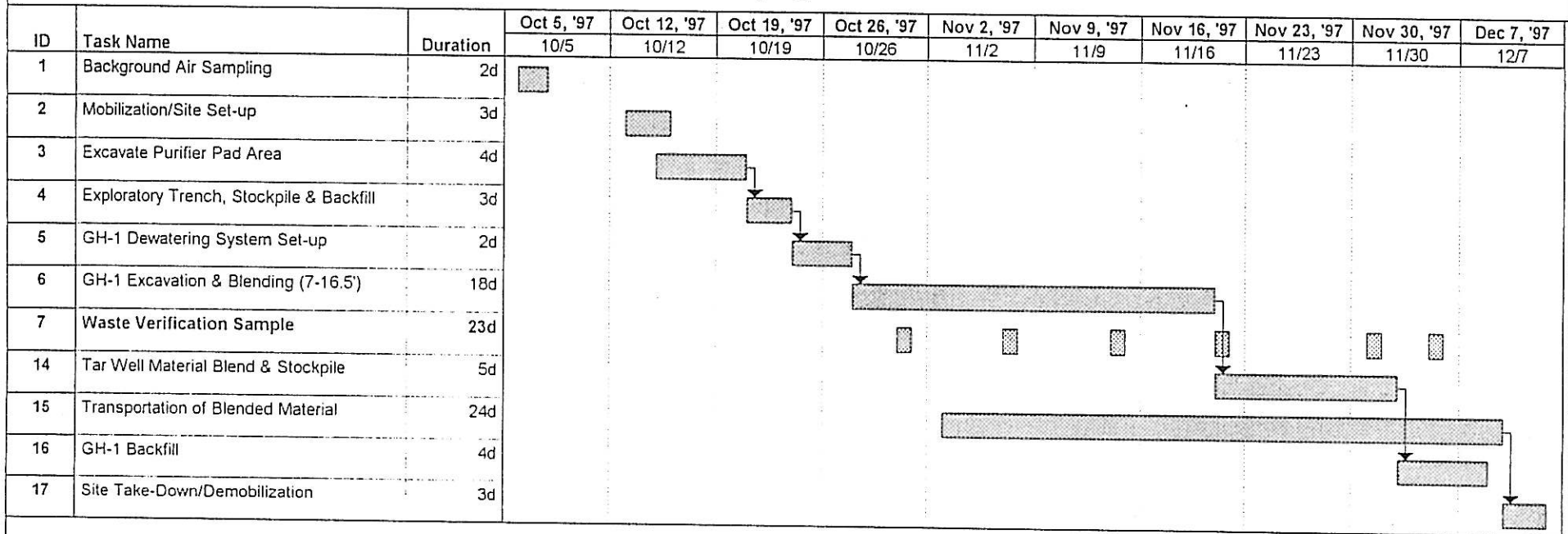
The project completion report will summarize the IRM activities, and will include photo documentation, waste blending and disposal records, and appendices containing analytical reports. Results of field decisions and deviations from the work plan will be documented. A general discussion of air monitoring results will be incorporated into the report. A separate air monitoring report is not contemplated.








## 13 SCHEDULE

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A schedule of on-site activities is shown on the following page. We anticipate the excavation of the purifier waste, tar wells and separator, and GH-1, and blending of the contents of GH-1, will take 42 working days.

## Proposed Schedule Interim Remedial Measures- Source Removal Champaign MGP



Project: IP-Champaign 17246	Task		Summary		Rolled Up Progress	
	Progress		Rolled Up Task			
	Milestone		Rolled Up Milestone			

## List of Tables

<b>Table Number</b>	<b>Table Name</b>
1	Analytical Parameters and Methods for Waste Samples
2	Waste Characterization Analytical Results for Gas Holder GH-1
3	Waste Characterization Analytical Results for Purifier Waste

Table 1. Analytical Parameters and Methods for Waste Samples

<b>Parameter</b>	<b>Method</b>
pH	SW846 9045b
Ash (550 °C)	EPA 160.4
BTU	ASTM E711-87
Paint Filter	SW846 9095
Total Solids (105 °C)	EPA 160.3
Reactive Sulfide	SW846 9030
Total and Reactive Cyanide	SW846 9010
Sulfur	SW846 6010 digested via Method 3051
Flash Point (open cup)	SW846 1010
EOX	SW846 9020
Total Phenolics	SW846 9066, mod.
BTEX	SW846 8260
TCLP Mercury	SW846 7470
TCLP Metals	SW846 6010
TCLP Volatiles	SW846 8260
TCLP Semi-Volatiles	SW846 8270

Table 2. Waste Characterization Analytical Results for Gas Holder GH-1  
Champaign MGP

Field Sample ID	GH1-12				
Date Sampled	3/12/97				
Sample Depth (feet)	10 - 12				
Sample Type	grab				
Sample Description	coal-tar/water				
Parameter	Units	Value	Parameter	Units	Value
pH	S.U.	6.41	<b>Metals</b>		
Ash (550 deg C)	%	1.1	Arsenic	mg/kg	3.2
BTU (Specific Heat)	btu/lb.	3,600	Barium	mg/kg	3.8
Moisture	%	22	Cadmium	mg/kg	1.4
Specific Gravity	g/cc	0.99	Copper	mg/kg	ND(10)
Sulphide	mg/kg	100	Iron	mg/kg	960
Cyanide (total)	mg/kg	2.3	Lead	mg/kg	93
Sulfur (as Sulphate)	%	0.29	Manganese	mg/kg	ND(10)
Total Organic Halogens (TOX)	mg/kg	ND (5)	Mercury	mg/kg	ND(0.4)
Ignitability	deg F	>200	Nickel	mg/kg	ND(10)
			Selenium	mg/kg	0.8
			Silver	mg/kg	ND(1.0)
			Sulphur	mg/kg	1,900
			Zinc	mg/kg	160
<b>Volatile Organic Compounds (VOCs) Detected</b>			<b>TCLP Volatile Organic Compounds Detected</b>		
Acetone	mg/kg	27	Benzene	ug/L	3,000
Benzene	mg/kg	380	Chloroform <sup>1</sup>	ug/L	16
2-Butanone	mg/kg	57	1,2-Dichloroethane	ug/L	68
1,4-Dichlorobenzene	mg/kg	2.6	1,4-Dichlorobenzene <sup>1</sup>	ug/L	13
1,2-dichloroethane	mg/kg	8.1			
Ethylbenzene	mg/kg	450	<b>TCLP Semi-Volatile Organic Compounds Detected</b>		
Toluene	mg/kg	550	o-Cresol	ug/L	270
Xylenes (Total)	mg/kg	570	m&p Cresol	ug/L	310
Total BTEX	mg/kg	1,950			
Total VOCs	mg/kg	2,045	<b>TCLP Metals</b>		
<b>Semi-Volatile Organic Compounds (SVOCs) Detected</b>			Cadmium	mg/L	ND(0.002)
Naphthalene	mg/kg	49,000	Chromium	mg/L	ND(0.004)
Acenaphthylene	mg/kg	9,200	Lead	mg/L	ND(0.022)
Acenaphthene	mg/kg	7,300			
Fluorene	mg/kg	9,500			
Phenanthrene	mg/kg	30,000			
Anthracene	mg/kg	6,400			
Fluoranthene	mg/kg	7,600			
Pyrene	mg/kg	15,000			
Benzo(a)anthracene	mg/kg	4,400			
Chrysene	mg/kg	4,200			
Bis(2-ethylhexyl)phthalate	mg/kg	270			
Benzo(b)fluoranthene	mg/kg	1,900			
Benzo(k)fluoranthene	mg/kg	1,700			
Benzo(a)pyrene	mg/kg	3,400			
Indeno(1,2,3-cd)pyrene	mg/kg	1,200			
Dibenzo(a,h)anthracene	mg/kg	310			
Benzo(ghi)perylene	mg/kg	1,300			
2-Methylnaphthalene	mg/kg	37,000			
Dibenzofuran	mg/kg	2,500			
Total SVOCs	mg/kg	192,180			

ND Not detected at detection limit in parentheses.

mg/kg milligrams per kilogram

BTEX Benzene, toluene, ethylbenzene, and total xylenes.

TCLP Toxic Characteristic Leachate Procedure

ug/L micrograms per liter

1 detected at higher concentrations in Method

mg/L milligrams per liter



Table 3. Waste Characterization Analytical Results for Purifier Waste  
Champaign MGP

Field Sample ID	CHTP-101-102-103	
Date Sampled	8/28/97	
Sample Depth (feet)	1 - 3	
Sample Type	composite	
Sample Description	purifier waste	
Parameter	Units	Value
pH	S.U.	5.5
Ash (550 deg C)	%	1.1
Total Solids	%	77.6
Reactive Sulphide	mg/kg	ND (31.9)
Reactive Cyanide	mg/kg	ND (0.32)
Total Organic Halogens (TOX)	mg/kg	ND (272)
Ignitability	deg F	>200
TCLP Metals		
Arsenic	mg/L	ND (0.025)
Barium	mg/L	0.041
Cadmium	mg/L	ND (0.0050)
Chromium	mg/L	ND (0.0050)
Lead	mg/L	ND (0.025)
Mercury	mg/L	ND (0.00020)
Selenium	mg/L	ND (0.040)
Silver	mg/L	ND (0.0050)

mg/kg milligrams per kilogram

mg/L milligrams per liter

ND Not detected at detection limit in parentheses

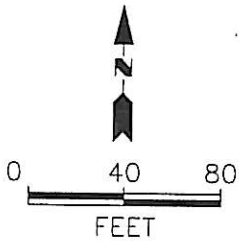
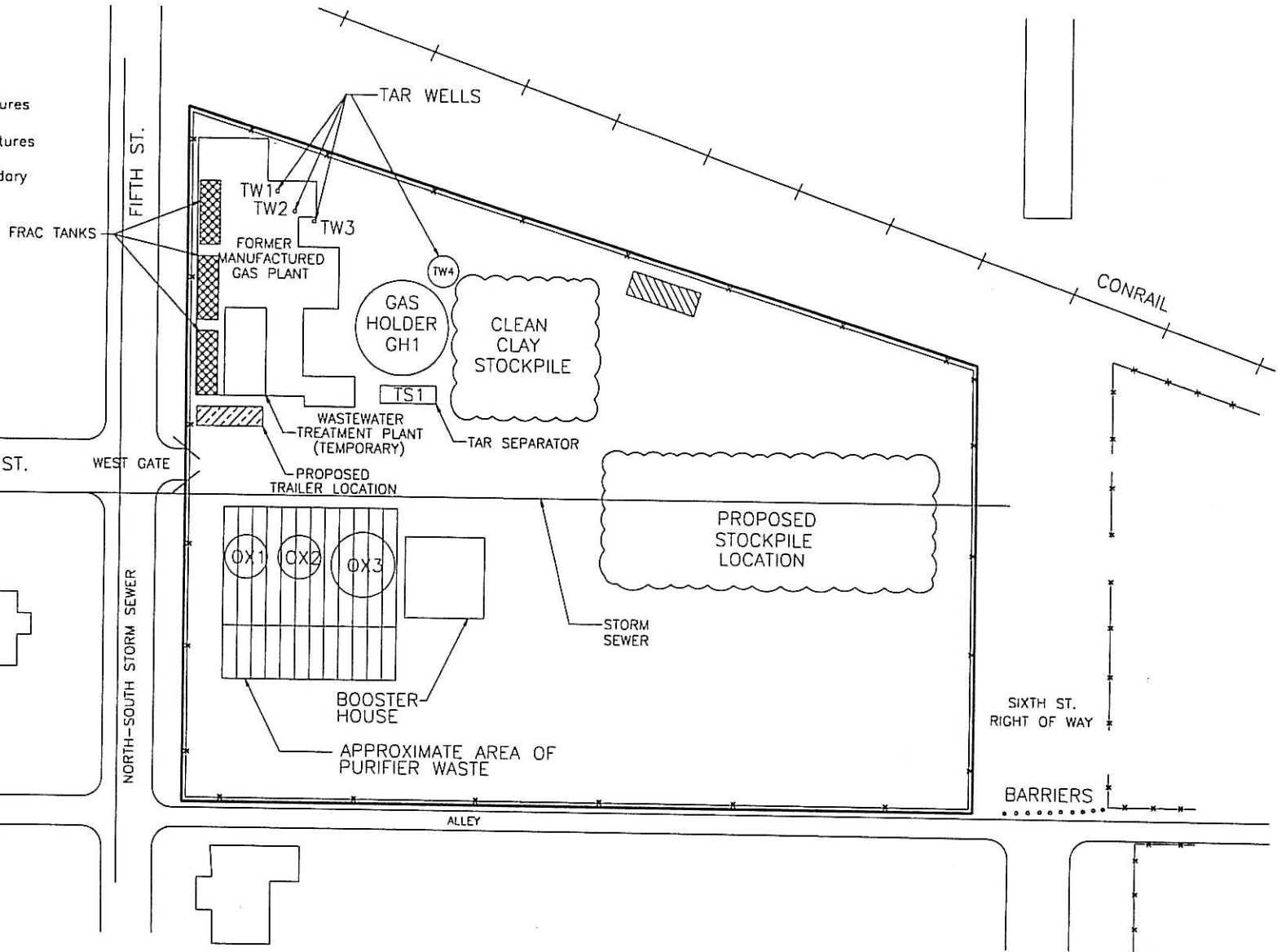
TCLP Toxic Characteristic Leachate Procedure

## List of Figures

<b>Figure Number</b>	<b>Figure Name</b>
1	Site Plan, Interim Remedial Measures Source Removal
2	GH-1 Profiles, Excavation and Backfill
3	Temporary Facilities, Decontamination Pad Plan and Details
4	Temporary Facilities, Stockpile and Silt Fence Details

**LEGEND**

- Existing Structures
- Previous Structures
- Properly Boundary
- ▨ Test Trench



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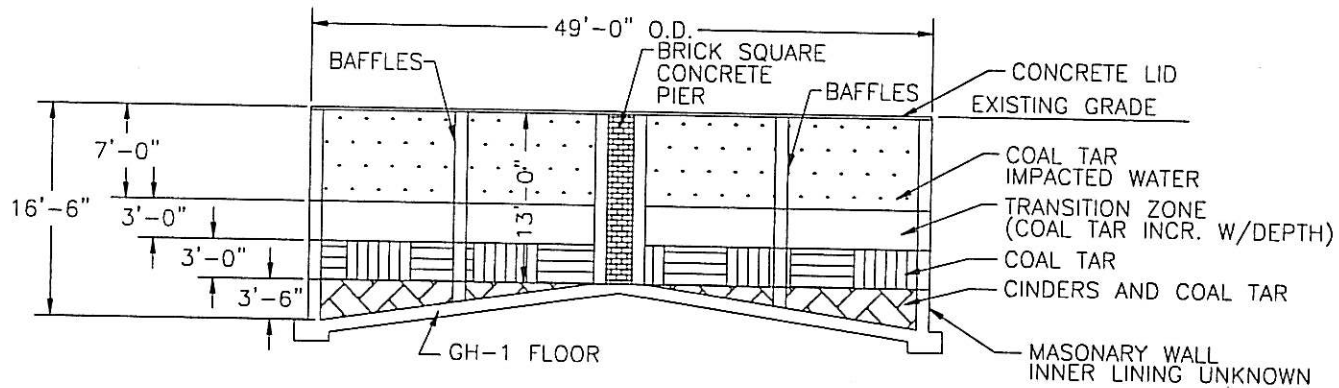
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 SOURCE REMOVAL**

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 CHKD:  
 DATE:  
09/16/97

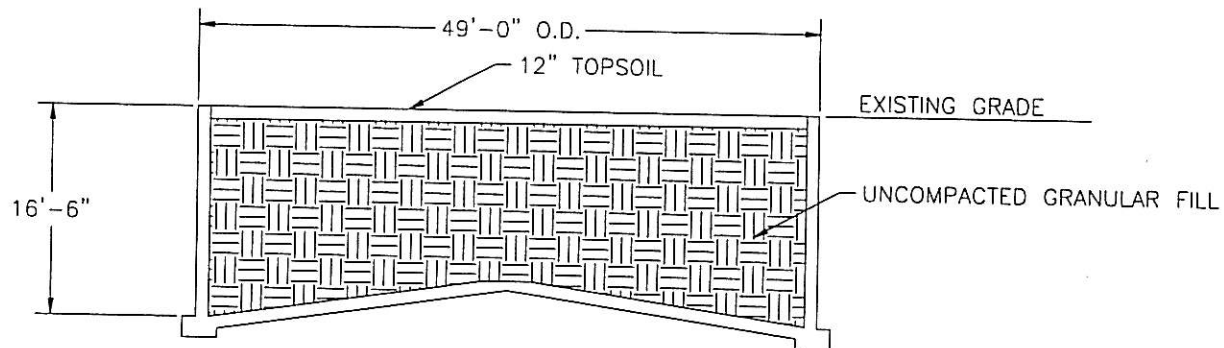
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SJC  
 APPD:  
 REV.:  
A

PROJECT NO.: 17246  
 MGP SOURCE REMOVAL  
 CHAMPAIGN, ILLINOIS

**FIGURE 1**



EXCAVATION PROFILE THRU GH-1



BACKFILL PROFILE THRU GH-1



COL1. J:\17246C-001



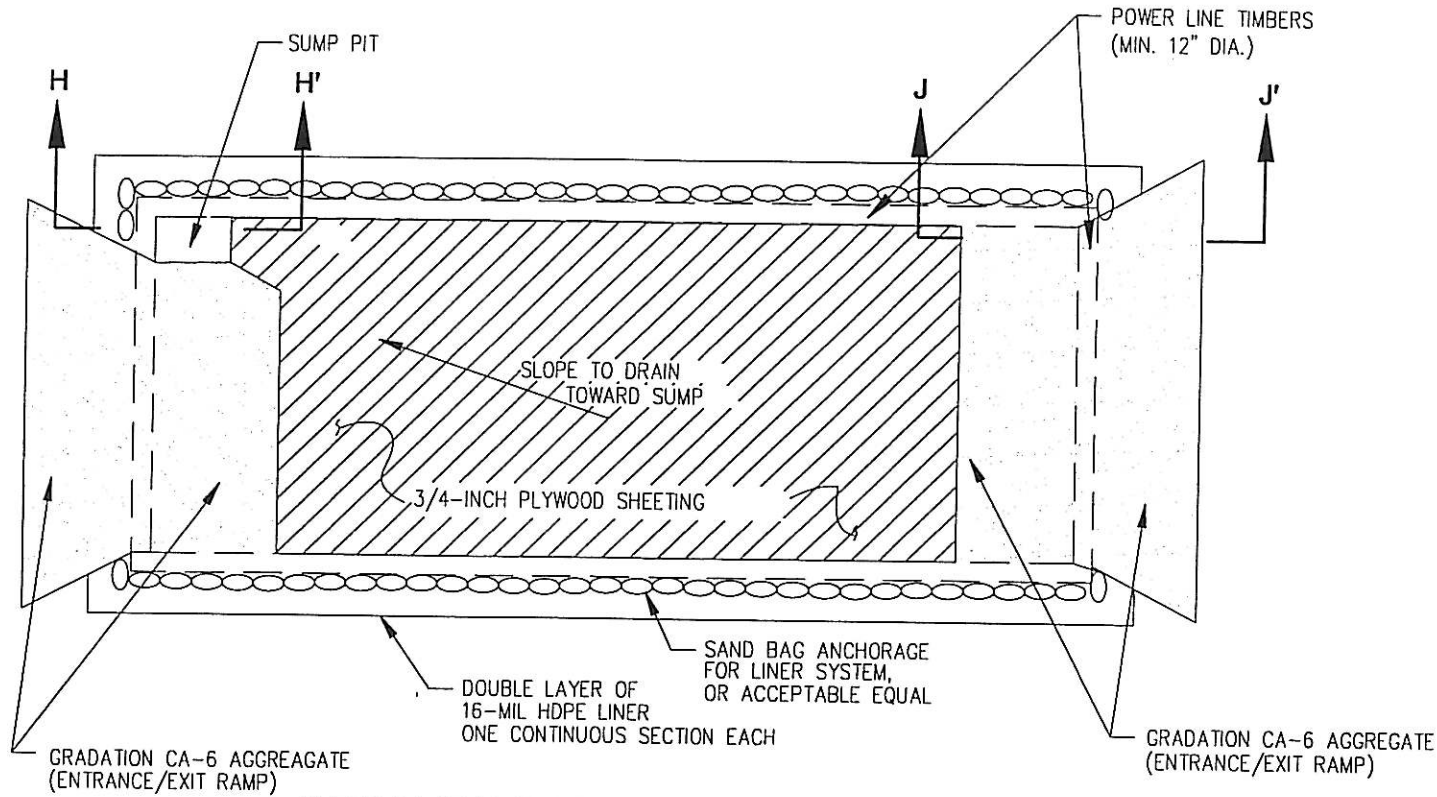
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GH-1 PROFILES  
EXCAVATION AND BACKFILL

DWN:  
MRC  
CHKD:  
DATE:  
04/17/97

DES.:  
SJC  
APPD:  
REV.:  
A

PROJECT NO.: 17246  
IP - Champaign  
Champaign, Illinois

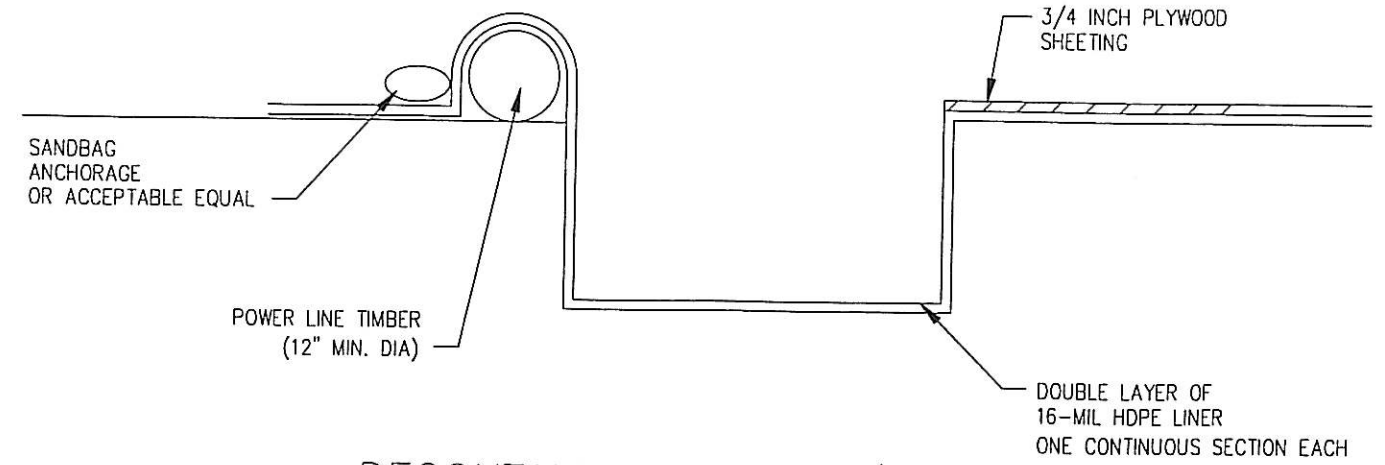
Figure 2



DECONTAMINATION PAD PLAN

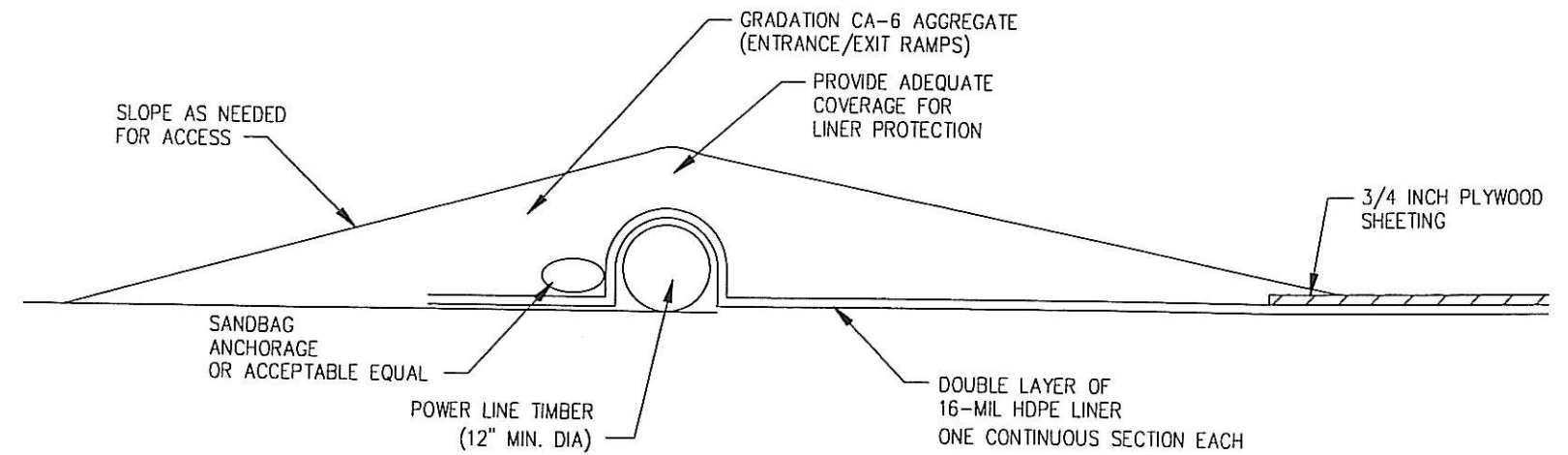


NOTE: PAD TO BE SIZED TO CONTAIN LARGEST PIECE OF EQUIPMENT PROPOSED BY CONTRACTOR, WITH NO OVERSPRAY



DECONTAMINATION PAD/SUMP DETAIL

SECTION H - H'



DECONTAMINATION RAMP DETAIL

SECTION J - J'



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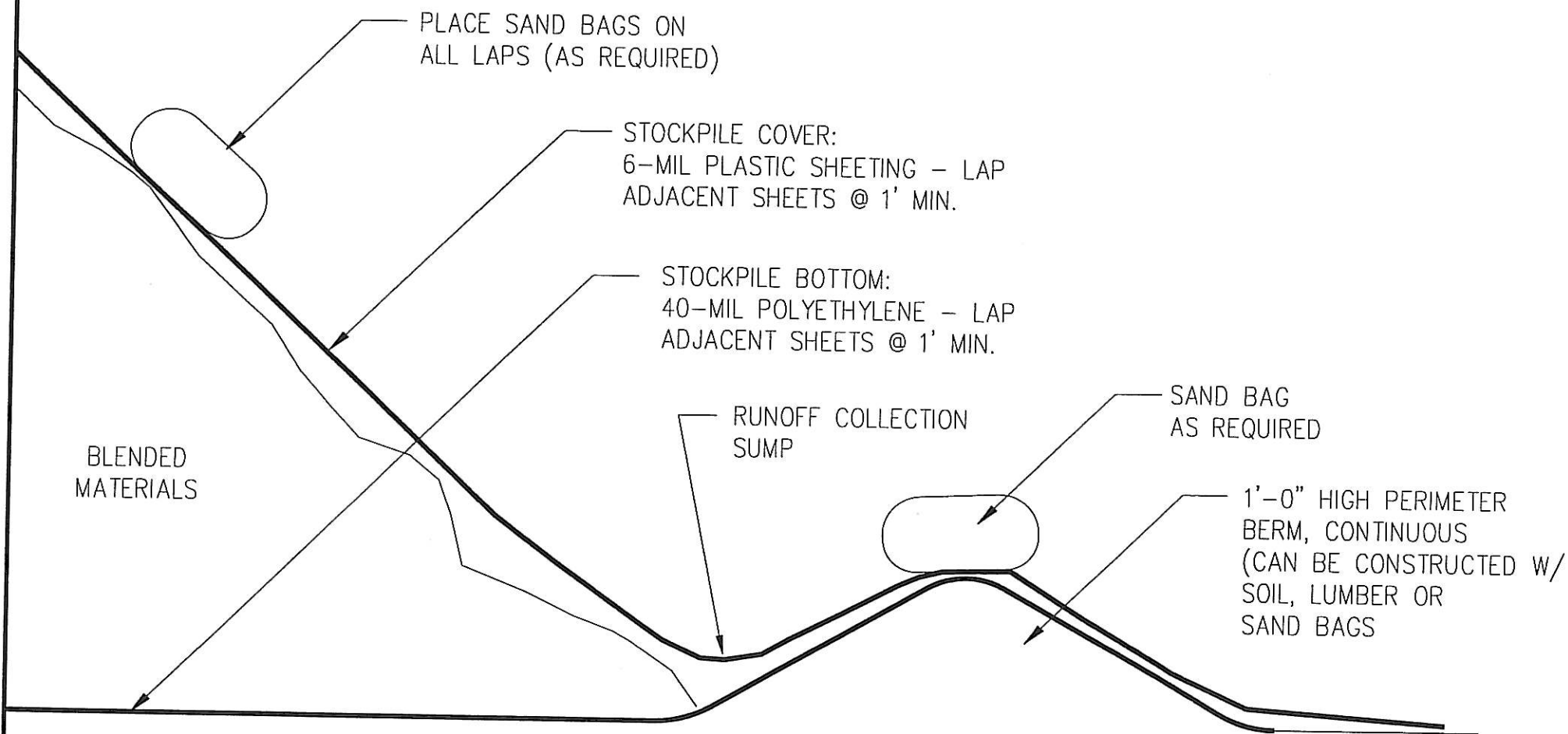
TITLE:  
TEMPORARY FACILITIES  
DECONTAMINATION PAD  
PLAN & DETAILS

DWN: TMM  
CHKD: DEW  
DATE: 7/9/97

DES: JW  
APPD: DEW  
REV: 1

PROJECT NO: 17246  
MPG SOURCE REMOVAL  
CHAMPAIGN, ILLINOIS

FIGURE 3



STOCKPILE CONSTRUCTION DETAIL

COL. J:\17246-002



TITLE:  
 TEMPORARY FACILITIES  
 STOCKPILE & SILT FENCE  
 DETAILS

DWN:  
TMM  
 CHKD:  
DEW  
 DATE:  
7/22/97

DES:  
JW  
 APPD:  
DEW  
 REV:  
1

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 CHAMPAIGN, ILLINOIS

FIGURE 4